



SolarSense CA II

11200 River Run Blvd., Suite 200
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LCFS Innovative Method Application Transmittal Letter

September 7, 2021

Richard Corey
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Mr. Corey,

Crimson Resources Management, Corp. ("Crimson") and SolarSense CA II, LLC. (SolarSense) (Each an "Applicant" and collectively "Applicants") are pleased to provide you with the attached application for the Low Carbon Fuels Standard "Innovative Crude Oil Production Method" credit. SolarSense constructed, owns, and operates a solar array for Crimson, who pays SolarSense for their services and electricity. Per the LCFS regulation, the Applicants are submitting this application jointly.

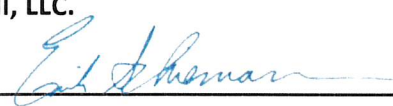
Each applicant attests to the veracity of the information in the attached application and declares that the information submitted accurately represents the anticipated and intended long-term, steady state operation of the innovative method. Further each applicant understands and agrees to each of the statements in Section A of the attached application. Each applicant represents that the signatory for their company is a duly authorized officer (or member) with authority to attest to the veracity of the information in the application and to sign on behalf of the respective applicant.

Crimson Resources Management Corp.

Signature: 
Bob Demos
Chief Operating Officer
Crimson Resources Management, Corp.

Date: 9/14/2021

SolarSense II, LLC.

Signature: 
Erik Schiemann
President
SolarSense CA II, LLC.

Date: 9/10/2021



SolarSense CA II

11200 River Run Blvd., Suite 200
Bakersfield, CA 93311

1055 Westlakes Drive Suite 140
Berwyn, PA 19312

Crimson Resources Management, Corp. & SolarSense CA II, LLC
Application for Low Carbon Fuel Standard
Innovative Crude Production Credits

A Written Statement of Understanding by Applicants

Crimson Resources Management, Corp. ("Crimson") and SolarSense CA II, LLC, ("SolarSense") understand and agree to the following:

1. All information in this application which is not identified as confidential business information is subject to public disclosure pursuant to the California Code of Regulations ("CCR") title 17, sections 91000 through 91022 and the California Public Records Act (Government code section 6250 et seq.), and that information claimed to be confidential in this application might later be disclosed under section 91022 if the State Board determines that the information is subject to disclosure.
2. That either the crude oil producer or transporter (Crimson) or the third party applicant (SolarSense) must register under section 95483.1 as an opt-in regulated party to receive Low Carbon Fuel Standard (LCFS) credit for innovative crude production and that if neither applicant registers as an opt-in regulated party, credits from innovative crude production may be claimed by California refinery(ies) that purchase crude produced with the innovative method by Crimson.

Crimson has opened an LCFS LRT-CBTS account and elects to opt in as a project operator.

B Application summary material:

1. Innovative Method description

The Crimson Lost Hills Thermal – 2MW Solar Project ("Project") is a 2.18 megawatt ("MW") direct current ("DC")/1.86 MW alternating current ("AC") ground-mounted single axis tracking solar photovoltaic ("PV") project located at Crimson's Lost Hills Oil Field lease at 12888 Holloway Rd, Lost Hills, CA 92349 ("Oil Field"). The project is on-site and supplies electricity "behind the meter" to the Oil Field. SolarSense is the owner of the Project, which will sell power to the Oil Field.

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The Project consists of 5,580 VSUN 390 Watt solar modules, 31 x 60 kW Yaskawa Solectria Solar PVI 60TL inverters that convert the DC power into AC power, which is used directly by the Oil Field to power Crimson's oil production equipment. The solar panels sit on a single-axis tracking system, which follows the daily path of the sun to maximize electricity production.

Crimson engaged Alternative Energy Development Group, LLC, and related Companies (collectively "AEDG") to Engineer, Procure, and Construct the Project and SolarSense, a company associated with AEDG, to finance and own the Project. Execution of the project is complete and the project is online. The Project is estimated to generate approximately 4,827,800-kilowatt hours ("kWh") with a contractually guaranteed minimum production of 4,147,000-kilowatt hours ("kWh") of electricity in its first year of production. The solar field produces a maximum of 1,860 kW, while the Oil Field consumes a minimum of 2039 kW while active (less than 1% of historical data may be less than minimum reported due to power outages, down time, etc.) See Exhibit A, Power Consumption and Production Estimate. Throughout the calculations below, contractually guaranteed minimums will be used to make estimates of LCFS credits and Crude oil CI reduction, actual credits generated and Crude oil CI reduction will vary based on actual Project power production.

The amount of electricity generated from the Project for Crimson's Oil Field operations means that the same amount of electricity from PG&E's distribution grid will not be used for oil production which is ultimately consumed by California refinery(ies). Since the source of utility power includes some fossil fuels, the Project lowers the lifecycle carbon emissions of transportation fuels in California.

Pursuant to Section 95489(c)(1)(E) of the LCFS Regulation, the Project exceeds the substantiality threshold of 0.10gCO₂e/MJ CI reduction based on the value of 511g CO₂e/kWh and the following calculation, both provided in Appendix A of the *LCFS Guidance Document for Crude Oil Innovative Method Application-Solar Generated Electricity*:

Emissions Reduction = 511 g/kwh x 4,147,000 kwh x 10⁻⁶ T/g = 2,119 Metric Tons of CO₂e/yr

Gross Standard Volume Oil Sales for 2020 for all production operated by Crimson at Lost Hills was 1,672,108 bbl of oil (4,581 bopd) at a measured, temperature-corrected gravity of 12.7 API. The value of 6303 MJ/bbl was interpolated between the standard values for 12 API and 13 API crude oil found in table A1 of *LCFS Guidance Document for Crude Oil Innovative Method Application-Solar Generated Electricity*.

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$$\Delta CI = (2,119 \text{ T/yr} \times 10^6 \text{ g/T}) / (1,672,108 \text{ bbl/yr} \times 6,303 \text{ MJ/bbl}) = 0.201 \text{ g/MJ}.$$

2. Engineering Drawings

Please see Exhibits A, B, C, and D, including a solar production estimate, site layout drawing, single-line diagram, and Key Equipment Data Sheets.

Please note: Engineering drawings were initially prepared for California Resources Corporation ("CRC"), the former operator of the Oil Field. While CRC (or its Corporate Successor(s)) remains a partial owner of the Oil Field, Crimson has become the operator and has obtained rights to use the engineering drawings.

3. Map

Please see attached map, the GPS coordinates of the Project are 35°41'45"N 119°48'36"W. The Project covers approximately 9.35 acres of land.

4. Preliminary Estimate of the Potential Innovative Method Credit

It is expected that in the first year of production, the innovative crude oil production method credit will be 2,119 tons/yr based on the following calculation provided in Appendix A of the *LCFS Guidance Document for Crude Oil Innovative Method Application-Solar Generated Electricity*:

Emissions Reduction = $511 \text{ g/kwh} \times 4,147,000 \text{ kwh} \times 10^{-6} \text{ T/g} = 2,119 \text{ Metric Tons of CO}_2\text{e/yr}.$

The Solar modules are subject to modest annual degradation that may decrease the number of credits produced annually over time.

Please see Exhibit A for reference.

Actual power delivered by the Project will be metered separately and logged for reporting and verification purposes. Electricity delivered from the utility will be metered and logged as well. While the project is designed for power to be used entirely on-site, any incidental back-feed of power will be logged and deducted from electricity used on-site for LCFS credit calculations. The incidental backfeed will be measured using a bidirectional power meter (See Exhibit E). Records will be kept and will be available upon request pursuant to section 95489(c)(4) of the LCFS regulation.

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C Project is Exempt from Section 95489(c)(2)(C) because it is a solar-based electricity Project.

D Project is Exempt from Section 95489(c)(2)(D) because it is a solar-based electricity Project.

E Reference List:

1. Low Carbon Fuel Standard, CCR title 17 Subchapter 10 Article 4 Subarticle 7 Section 95480 et seq.
2. California Air Resources Board Staff, (Not dated, Accessed, August, 2020) *LCFS Guidance Document for Crude Oil Innovative Method Application-Solar Generated Electricity* Retrieved from https://ww2.arb.ca.gov/sites/default/files/2020-07/lcfsguidance_20-06.pdf
3. Pacific Gas and Electric Company, (updated 2016, July 8) *Electric Rule No. 21 Generating Facility Interconnections* Retrieved from https://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_21.pdf

F Transmittal Letter

See attached Transmittal Letter.

G Confidential Information

Neither Crimson nor SolarSense claim that anything contained in this application or any of its attachments is Confidential.

H This application and supporting documents are submitted by Crimson through the Alternative Fuels Portal (<https://ssl.arb.ca.gov/lcfsrt/Login.aspx>) or via e-mail at the discretion of CARB staff and the Executive Officer of CARB. The undersigned representative of each co-applicant authorizes this transmittal.



SolarSense CA II

Crimson Resources Management Corp.

Signature: _____

Bob Demos

Chief Operating Officer

Crimson Resources Management, Corp.

Date: _____

9/14/2021

SolarSense CA II, LLC.

Signature: _____

Erik Schiemann

President

SolarSense CA II, LLC.

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